

2. DESCRIPTION OF COGENERATION PROJECT

2.1 Proposed Action

The BP Cherry Point Cogeneration Project (Cogeneration Project) is a proposed natural gas-fired combined-cycle cogeneration (steam and electricity) facility located adjacent to the BP Cherry Point Refinery (Refinery). The purpose of the Cogeneration Project is to provide steam and electricity to the Refinery and to produce excess electricity for local and regional consumption. Because of the combined resource uses and high efficiencies associated with cogeneration, BP can accomplish these objectives with minimal impacts to the environment and to its neighbors.

2.1.1 Proposed Project Site

The proposed Cogeneration Project would be near Ferndale and Blaine in northwestern Whatcom County, Washington. The Cogeneration Project will be sited on the eastern edge of the Refinery between Grandview and Brown roads. The Cogeneration Project site is approximately 6 miles northwest of Ferndale, Washington, 7 miles southeast of Blaine, Washington, and about 15 miles north of Bellingham. The nearest community is Birch Bay, Washington, about 2 miles northwest of the site. The Canadian border is about 8 miles directly north of the proposed site. The location of the proposed Cogeneration Project is shown on Figure 2.1-1.

The entire project, including the generation plant and support facilities, the new transmission line, natural gas and water supply connections, and construction laydown areas, will be located on BP-owned property. This area is within the Cherry Point Major Industrial Urban Growth Area/Port Industrial Zone as defined in the *Whatcom County Comprehensive Plan*, issued on May 20, 1997. The entire project area is zoned Heavy Impact Industrial. The Cogeneration Project site occupies approximately 33 acres of unimproved land. The Refinery property boundaries and the project site are also shown on Figure 2.1-1.

The land surrounding the proposed Cogeneration Project site is relatively flat and is owned by BP for at least 0.5 miles in all directions. The closest residence is about 0.75 miles east of the Project site. Prior to the construction of the Refinery in 1969, the land was used for agriculture. The vegetation in the area consists mainly of grasses with areas of hybrid poplar trees that were planted by BP for harvesting. The only relatively mature forests near the site are small patches that developed from abandoned homesteads. Land north of the Refinery and the proposed Cogeneration Project is owned and used by BP for habitat enhancement and serves as a buffer for industrial operations. Some portions of this land are leased to local farmers for grazing and hay production. Terrell Creek is located within BP's habitat enhancement area and is about 0.5 miles north of the Cogeneration Project. Other nearby industrial sites to the Cogeneration Project include the Chemco wood treating facility (located about 0.75 miles east), the Praxair industrial gas plant (located 0.5 miles south) and the Puget Sound Energy peaking power plant (located 1.0 mile west).

The infrastructure necessary to support the Cogeneration Project is completely contained within or immediately adjacent to BP-owned land (Figure 2.1-2). Water for the Cogeneration Project will be ~~provided from the Refinery system, which is~~ supplied from the Whatcom County Public Utility District #1 (PUD) water supply system. A water supply connection from the ~~PUD's existing pipeline Refinery~~ to the Cogeneration Project will be on BP-owned land. The electrical transmission towers and corridor from the Cogeneration Project will be on BP-owned land and will connect to the Refinery and to

the BPA electrical transmission corridor adjacent to the BP-owned land. The electrical transmission line corridor is shown in Figure 2.1-2. The supply of natural gas to the Cogeneration Project will be from the existing 16-inch diameter Arco Western Natural Gas Pipeline (Ferndale Pipeline) that runs through BP-owned land as shown in Figure 2.1-2. If necessary, supplemental natural gas would be supplied by a third party.

The proposed Cogeneration Project is consistent with existing land uses in the surrounding area. The Refinery and surrounding properties owned by BP are zoned Heavy Impact Industrial and Light Industrial. The Cherry Point Major Industrial Urban Growth Area/Port Industrial Zone is approximately 6,500 acres, of which approximately 2,500 acres are currently occupied by heavy impact industries (Whatcom County Comprehensive Plan, 1997). Land use and zoning maps of western Whatcom County and of the Cherry Point sub area from the Comprehensive Plan are presented in Figures 2.1-3 and 2.1-4, respectively. The northern boundary of the proposed Cogeneration Project is 337' south of the centerline of Grandview Road. This setback provides space for landscaping and also provides a buffer from existing gas pipeline easements that are located 100' south of the centerline of Grandview Road.

2.1.2 Proposed Cogeneration System

The Cogeneration Project will be designed and constructed in strict conformance with applicable federal, state, local, and industry building codes and standards for thermal power plants. These codes and standards account for natural hazards that exist for specific site conditions. A full start-up and commissioning program will transition the Cogeneration Project from the construction phase to commercial operation. A summary of the proposed action is given in the following paragraphs and a more detailed description of the proposed action is provided in Appendix D, Project Description.

The Cogeneration Project will be a combined-cycle cogeneration (steam and electricity) plant located at the Refinery. The Cogeneration Project will produce a nominal 720 megawatts (MW) of power and export electricity and steam to the Refinery. The Refinery will recycle the steam condensate ~~and return boiler feed water~~ back to the Cogeneration Project ~~to be cooled in the air-cooled condenser (ACC)~~. The Cogeneration Project will be configured with three natural gas-fired combustion gas turbines (CGTs). Each CGT will be equipped with a heat recovery steam generator (HRSG) with supplemental duct-firing capability. Steam produced from the three HRSGs will be sent to a single steam turbine electric generator (STG). Some of the steam will be extracted from the steam turbine and sent to the Refinery to provide process heating. The steam that is utilized by the STG to generate electricity will be condensed in a surface condenser cooled by water.

The proposed Cogeneration Project plant layout is presented in Figure 2.1-5. A three-dimensional view of the plant from Grandview Road is provided in Figure 2.1-6. The Cogeneration Project major buildings would include the steam turbine generator (STG) ~~building enclosure~~, administration building, control room, water treatment building, maintenance shop, warehouse, and three switchyard control buildings. Major equipment not contained within buildings includes the ~~ACC~~, HRSGs, CGT generators, ~~cooling tower~~, electrical grid in the switchyard, transformers, and emission stacks. A small control laboratory room would be provided in the water treatment building. In addition, several small-prefabricated buildings such as power distribution centers, switchyard control houses, and a guard shack will be included. The major buildings will

be constructed of metal and pre-engineered per the building manufacturer's standards. These will be steel-framed structures with roof trusses. The roofing and siding will be metal panels with standard insulation to withstand local weather conditions.

The Cogeneration Project will integrate operations with the Refinery to increase efficiency and reduce the consumption of and impacts to natural resources. Figures 2.1-7 and 2.1-8 illustrate this integration. The overall heat rate of cogeneration is lower than conventional stand-alone combined-cycle systems. The Cogeneration Project will allow the Refinery to shut down older, less efficient boilers that are currently used to supply steam. The retirement of these old boilers will reduce emissions (both criteria pollutants and greenhouse gases) to the atmosphere. These and other emission reductions are expected to will result in a decrease of total criteria pollutants from the Refinery and from the Cogeneration Project when taken together. The proposed Cogeneration Project will be fueled by natural gas and will not use backup fuels.

The power generated, net of Refinery consumption, will be exported via a new transmission line connected to the 230-kilovolt (kV) BPA transmission line corridor located adjacent to the BP property. Ownership of the Cogeneration Project switchyard and the transmission line from the switchyard to BPA's 230-kV transmission line will be subject to the terms of the interconnection agreement with BPA.

Water used for industrial purposes within the Cogeneration Project would be supplied by Whatcom County Public Utility District (PUD) from recycled water used for once-through cooling at the nearby Alcoa aluminum smelter. Alcoa uses the water to cool air compressors so it does not come into contact with any contaminants.

Approximately 2,780 gpm of water from Alcoa will be recycled. The Cogeneration Project requires an average of 2,244 to 2,316 gpm of industrial water, so the remaining 484 to 556 gpm of recycled water will be used by the Refinery, resulting in a net decrease in the average amount of fresh water needed to be withdrawn from the Nooksack River. This decrease in water use also includes 20 gpm of water the Refinery would save as a result of the Cogeneration Project providing steam to the Refinery.

The Cogeneration Project will conserve fresh water through the use of an ACC. The exhaust from the steam turbine would discharge into an exhaust duct that leads to a multi-cell ACC for the steam cycle heat rejection. The condensed steam from the ACC cooling coils will drain into a hotwell tank and then combine with return boiler feed water from the Refinery before flowing back to the HRSG. The Cogeneration Project would minimize fresh water consumption by using an ACC instead of a fresh water evaporative cooling system,¹ and by recycling the Cogeneration Project boiler feedwater blowdown for use at the Refinery.

The net amount of additional fresh water required for the operation of the Cogeneration Project is approximately 40 gallons per minute (gpm) and the The average amount of non-recyclable wastewater produced by the Cogeneration Project is only will be about 50 190 gpm, assuming 15 cycles of concentration in the cooling tower. The non-recyclable

¹BP's goal is to minimize the consumption of fresh water. At this time, BP has proposed to use an ACC for cooling. BP would consider installing an evaporative cooling system if it were able to obtain sufficient reclaimed industrial waste water to operate the system without increasing fresh water consumption significantly.

wastewater will be sent to the Refinery wastewater treatment system for treatment and discharge.

Table 2.1-1 compares the proposed Cogeneration Project to a [comparable](#) stand-alone power plant ~~using the same equipment~~.

TABLE 2.1-1
[\(REVISED\)](#)

Benefits Summary of the proposed Cogeneration Project

Key Features	Cogeneration (Water-Cooled)	Non-Cogeneration (Air-Cooled)
Electricity produced	721 MW	805 MW*
USE OF NATURAL RESOURCES		
Gas use	4,846 MMBtu/hr	5,800 MMBtu/hr
Net use of fresh water	-484 to -556 gpm	54 gpm
EFFICIENCY		
Thermal efficiency	63%	53%
Heat rate, Btu/kWh	6,549	7,200
EMISSIONS		
Net criteria pollutant emissions	-143 tons/year	~ 950 tons/year
CO ₂ emissions from site if not mitigated	2.3 MMTonne/year	2.9 MMTonne/year (higher fuel firing rate)
Net waste water to be disposed of	190 gpm	42 gpm
LAND USE		
Purchase	None	Up to 40 acres or more
Land use	Heavy Impact Industrial	Depends on location
Proximity to major population centers	15 mi – Bellingham; others more distant	Depends on location
OFFSITE CONSTRUCTION REQUIRED		
Transmission line, miles	0.8; all on BP property, also 4 mi of existing 230 kV circuit would be doubled if that interconnection alternative were selected.	Depends on location
Gas laterals to site, miles	None	Depends on location
Water line to site, miles	None	Depends on location

*A stand alone plant using the same equipment would generate 12% more power than the Cogeneration Project but would also use 23% more fuel.

2.1.3 Cogeneration Project Operation

2.1.3.1 Operation Workforce

The operation of the Cogeneration Project will require about 30 full-time employees. The plant will operate 24 hours a day, seven days a week. The day shift during weekdays would normally have the largest number of personnel at the plant, since maintenance and administrative activities would take place during these hours. Nightshifts and weekend crews would consist mainly of operating personnel.

2.1.3.2 Water Supply

The Cogeneration Project will require two streams of fresh water: industrial water and potable water. All Industrial water supplied to the Cogeneration Project during operation will be provided from the Refinery, the Whatcom County PUD. The Cogeneration Project will require two streams of fresh water: potable and operational industrial water. The potable water supplier to the Refinery is the Birch Bay Water and Sewer District. The amount of potable water required for drinking, personal washing, and sanitation use by the Cogeneration Project will be minimal, averaging about between 1 to 2-5 gpm.

On the average, only about 38 additional gpm of new industrial water will be required for the operation of both the Refinery and the Cogeneration Project. The Cogeneration Project will reuse once-through cooling water provided by the Whatcom County PUD to conserve fresh water from the Nooksack River. A summary of the water supply and the anticipated Cogeneration Project water consumption is presented on Figure 2.1-9 (water balance). Currently, the Refinery receives an average of 4,170 gpm of industrial water from the PUD. With the proposed Cogeneration Project, only an average of 4,210 gpm will be required for the operation of both facilities. The Cogeneration Project minimizes water consumption by integrating the use of water and steam with the Refinery.

2.1.3.3 Wastewater Generated During Operations

During normal operation, the Cogeneration Project will generate wastewater from the following activities:

- Treatment of incoming (raw) industrial water and condensate from the Refinery to produce high quality boiler feedwater. This wastewater stream is estimated to be about 47.54 gpm and will contain treatment chemicals, along with the removed ions and rinse waters. This wastewater will be collected in the neutralization tank, neutralized to a pH between 6.5 and 8.5, then pumped to the Refinery treatment system.
- Collection of water and/or other minor drainage from various types of equipment. This wastewater is expected to be about 2-5 gpm on average and has the potential to contain free oil, as this water may contact surfaces, which could have lube oil or grease on them. It is collected separately in a sump and pumped to the Refinery's oily water sewer for treatment in the Refinery.
- Sanitary waste. This wastewater is expected to be less than 2-5 gpm on the average and will be collected in a sump and pumped to the Refinery's sanitary system for ultimate disposal to the Birch Bay public sewage treatment system.
- Turbine maintenance. A wastewater stream is generated when a gas turbine is shut down in order to wash the turbine's air compressor blades to restore peak operating efficiency. This is done when monitoring data shows the gas turbine air compressor blades are dirty, and could be done no more than once every few months per gas turbine. The operation will generate approximately 1,250 2,300 gallons of water containing dirt particles deposited on the compressor blades during normal operation, potentially traces of lubricating oil, and detergents used for the cleaning operation. The water will be collected in a sump and either pumped or trucked to the Refinery for a processing facility for proper treatment and disposal.

- HRSG Blowdown. Ordinarily, the HRSG blowdown would generate wastewater. In this case, however, the HRSG blowdown from the Cogeneration Project will be recycled for use at the Refinery sent to the cooling tower to further reduce fresh water demand.
- Cooling Tower Blowdown. About 7% of the circulating water flow, or 131 gpm is drained off to control cooling water quality at 15 cycles of concentration. The cooling tower blowdown will be pumped to the Refinery wastewater treatment system.

2.1.3.4 Other Wastes Produced During Operation

Very little waste will be produced during the operation and maintenance of the Cogeneration Project. The used lubrication and transformer oils and small quantities of used paints, thinners, and solvents used during operation will be recycled or disposed of in accordance with federal, state, and local regulations. Any dangerous wastes generated by the plant will be managed to ensure compliance with Washington Dangerous Waste Regulations (173-303 WAC).

Solid waste (trash) will also be generated by the facility from general maintenance, employees, and other sources. A recycling program will be in place to minimize to the degree practical the need to dispose of solid waste in a sanitary landfill.

2.1.3.5 Atmospheric Emission Control System

The Cogeneration Project will use the Best Available Control Technology (BACT) for minimizing atmospheric emissions. Natural gas will be the only fuel used for firing the CGTs and the duct burners in the HRSGs. Selective catalytic reduction (SCR) and carbon monoxide (CO) oxidation catalysts installed in the HRSG will further reduce the NO_x, CO and volatile organic compound (VOC) emissions to the required levels.

A simplified flow diagram of the emission reduction system is presented in Figure 2.1-10. As shown, the mechanical components of the system will consist of a reactor chamber with a modular catalyst bed and an ammonia distribution and injection system. The ammonia will be injected into the flue gas stream, upstream of the SCR catalyst. There are no moving parts within the HRSG, and other than spent catalyst generated once every few years, the SCR process will produce no solid or liquid waste products. More details on the selected BACT, emissions, emission offsets from retirement of older boilers, and other air impacts are presented in Appendix D, Project Description Technical Report, and Appendix E, Technical Report On Air Quality.

2.1.4 Construction Operations

The construction schedule for the Cogeneration Project is presented in Figure 2.1-11. The schedule includes final engineering design, equipment procurement, site preparation, facility installation, and commissioning.

2.1.4.1 Construction Workforce

The Cogeneration Project assumes an average of ~~50 to 55~~ 40 to 48 hour workweeks per construction worker. Table 2.1-2 provides an estimate of the work force anticipated during construction of the Cogeneration Project.

The construction plan is based on a February 2004 construction start ~~date~~date and is based on a single shift per day with spot overtime as necessary to achieve specific milestones. ~~A second~~ Additional shifts may be instituted to accommodate a particular construction activity or meet a critical milestone. At present, the only period when a long-term second shift is anticipated is during the last three months of the commissioning effort.

Initial activities upon mobilization include establishment of the field construction office, the site survey, and the preparation of the site parking and laydown areas. Wetland areas adjacent to the Project site or laydown areas will be fenced off for protection.

Site Security: A site security system will be established as construction activities proceed and prior to staging materials on the site and in laydown areas. The site and laydown area will be fenced with an 8-foot tall chain link fence with barbed wire on top. Site access will be controlled for personnel and vehicles.

Housekeeping: Work areas will be organized and cleaned as necessary. Steps will be taken to minimize excessive mud on Grandview Road. Dust will be controlled during construction by spraying water whenever the unprotected soil surfaces are dry and have the potential for fugitive dust emissions. The amount of water anticipated for dust control is estimated to be about 7 million gallons for the duration of the construction period. Water will be applied to maintain a moist surface, but not to create surface water runoff or erosion conditions.

Erosion Control: Erosion control measures will be used in accordance with the requirements of the Stormwater Pollution Prevention Plan (SWPPP) that will be developed to include specific construction activities of the project. Erosion control measures may include such items as silt fences, straw bales, rock bases, temporary water conveyance structures, and detention ponds.

TABLE 2.1-2

Expected Work Force (Number of Personnel)

CRAFT/TRADE	Year 2004												Year 2005											
	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Boilermakers					9	19	28	38	51	69	76	79	79	76	60	22	13	13						
Carpenters	1	1	12	22	34	47	63	75	85	91	83	62	52	41	29	28	27	27	24	19	11	7	3	
Electricians					11	22	37	56	75	93	108	126	130	132	132	129	116	97	64	21	2	1		
Ironworkers			2	5	8	11	32	45	54	54	46	22	17	9	6	5	4	4	3	1	1	0	0	
Laborers	10	13	23	29	26	28	23	28	33	36	35	29	26	23	22	23	23	23	22	19	11	7	3	
Pipefitters				1	17	31	50	75	102	126	142	164	173	177	178	173	167	143	90	36	3	2	1	
Painters/ Insulators																		22	35	40	37	25		
Bricklayers/ Masons			2	3	5	7	11	13	16	16	15	10	7	3	1	1	1	1	1	1	1			
Millwrights						10	20	30	40	54	74	81	84	84	81	64	23	13	13					
Oper Engineers	17	22	34	39	32	29	16	22	27	33	34	34	33	33	30	25	22	20	15	9	4	3	1	
Teamsters	6	8	13	15	12	12	6	8	10	12	13	14	14	14	14	14	13	12	10	7	4	2	1	
Total Craft	34	44	86	114	155	218	286	391	493	584	626	620	615	591	553	483	410	375	278	154	72	47	9	
Field Staff	11	18	25	32	39	41	45	45	47	47	47	56	56	56	55	55	54	51	48	39	30	17	14	
Total Site Staff	45	62	111	146	194	259	331	436	540	631	673	676	671	647	608	538	464	426	326	193	102	64	23	

Sanitation: A service firm will place field toilets and temporary holding tanks onsite for use by construction workers. These toilets will be serviced frequently by an outside service firm. During construction, potable water will be provided until the permanent water supply system is installed, or the contractor may provide potable water in containers.

2.1.4.2 Site Preparation

Prior to site preparation activities a SWPPP will be developed. The proposed plant site will be cleared and graded to a level surface. To the extent possible, excavated material of acceptable quality will be retained on the site in designated locations, using proper erosion control methods, for reuse as backfill. Excess material to be removed from the site will be disposed of at an acceptable designated location.

All site preparation will be completed using conventional methods of construction. The site does not have a high water table, so dewatering is not expected to be required. Vegetation at the Cogeneration Project site includes grasses, shrubs, and small trees (mostly hybrid poplar planted by BP for harvesting as pulpwood). The site will be cleared and graded to allow stormwater drainage during construction by sheet flow into a perimeter trench system for collection and disposal. There are no streams within the Cogeneration Project site, but wetlands exist within the Cogeneration Project site and the laydown areas. A detailed wetland delineation, an analysis of the wetland functions and values, and mitigation measures are provided in Appendix H, [Technical Report on Plants and Animals](#).

Conventional construction equipment, including bulldozers, front-end loaders, trucks, tractor scrapers, and graders will be used for site preparation. [A phase 1 environmental survey is planned for the Project site. BP also contracted for an archeological survey of the Project site, laydown areas and access road sites.](#)

[The Lummi Tribe conducted an archaeological investigation on areas that would potentially be affected by construction of the Cogeneration Project. These areas include the Cogeneration Plant site, laydown areas, access roads, and power transmission line tower locations. Based on the archaeological investigation conducted to date, no significant cultural resources have been identified. A pedestrian survey is planned for the wetland mitigation areas where the ground will be disked to control reed canary grass. If significant cultural resources are located during those investigations, recommendations will be provided for appropriate mitigative actions. Prior to excavation or grading, BP or the construction contractor will take soil samples and contract for archeological surveys.](#)

[The archeological survey showed that only a small area within Laydown area 3 was identified as containing ephemeral lithic scatter. This small area would be monitored during preparing the area to serve as an equipment laydown area, but no significant excavation is to be performed in this location. These proactive steps will minimize the chance of disturbing cultural resources or finding contaminated soil during excavation or grading activities.](#)

If cultural resources or contamination are encountered during excavation and grading, BP will halt construction in the suspect area, notify the pertinent regulatory agencies and take appropriate actions.

2.1.4.3 Construction Best Management Practices

The proposed site is generally flat. Stormwater that does not infiltrate directly into the ground would normally run off with the lay of the land toward the north and west. During construction, silt fences, sandbags, drainage swales, and ditches will be used to control the flow from the work area to prevent sedimentation or erosion to the undisturbed areas adjoining the site. Upslope surface waters will not be allowed to enter the construction areas and will be diverted around the affected areas by means of swales and ditches toward the general area to which they originally drained.

Construction stormwater control will use best management practices (BMPs) and meet the requirements of the WDOE and Whatcom County. Runoff from construction areas will be collected into a perimeter ditch, which will feed a main collection ditch for the Cogeneration Project facility. Sediment from incidental erosion will be collected by conventional means within the perimeter ditch. Using these measures, the site runoff will be captured and diverted to a treatment and detention system where the silts and fines will be allowed to settle out before water will be discharged to the adjoining areas. Erosion control measures will be installed at all outfall locations to minimize any adverse effects to the undisturbed surrounding terrain. Vegetation will be planted on permanently exposed sloped areas and ditches to minimize any erosion to these surfaces.

Stormwater from construction laydown areas that might contain contaminants will be routed first to an oil/water separation system equipped with a shut-off valve for spill containment before discharging to a final treatment and detention pond [as required by the Stormwater Pollution Prevention Plan](#). Water from the final treatment and detention pond will be discharged within the same subbasin to receiving wetlands and duck ponds in the natural drainage area, prior to entering Terrell Creek.

Details on the stormwater collection, treatment, and detention system are provided in Attachment A of Appendix F, Technical Report on Water. As part of the early stages of construction, the wetland mitigation area construction will begin. The final topography will be graded, invasive weed preventive measures instituted, and erosion control measures put into place.

2.1.4.4 Construction Laydown Areas

Approximately 36 acres of land will be used for construction laydown. The Cogeneration Project plant layout and the areas that will be used for construction laydown and construction parking are shown in Figure 2.1-12. Construction laydown and parking areas will be adjacent to the plant site. A security fence will be installed around the perimeter of the site, as well as the perimeter of the laydown areas. The construction worker entrance will be a security gate on Blaine Road on BP property.

2.1.4.5 Facility Construction

The facility construction work commences with installation of underground systems, which include piping, sewers, duct banks, and grounding grid. The underground piping will consist of industrial, potable, and firewater distribution. The sewer system will

consist of sanitary wastewater, oily water, and clean stormwater collection systems. After the installation of the underground systems and foundations, the excavated areas will be backfilled, compacted, leveled, and gravel-finished for installation of the above ground portion of the facility.

The main north-south pipe rack will be erected and HRSG [and cooling tower](#) installation will begin ~~with the southernmost unit~~. The pipe rack will contain steam lines, condensate lines, and return boiler feed water lines between the Cogeneration Project and the Refinery. The piping on the rack will be loaded prior to the arrival of the gas turbines. For each HRSG, the respective stack will be field assembled and erected last. Work in the water treatment area will commence with fabrication and installation of tanks. ~~The ACC installation will then commence going from north to south~~. The water treatment building will be built to house the water treatment equipment.

The steel structure for the steam turbine building will be constructed and the bridge crane assembled and installed prior to the arrival and setting of the steam turbine and generator on their foundations. The heavy-haul components will be transferred from a nearby railroad spur or seagoing barge to the plant using special transports. The building siding and roof panels will be installed last to enclose the building. The steam turbine transformer will then be set in place and the connections made.

The 230-kV switchyard and the main transmission line work will be started next. The installation work will continue as the gas turbines and the generators are being received and set in place. The gas turbines and the generators will be installed beginning with the southernmost unit closest to the steam turbine. After each generator is set on its foundation using heavy-haul transport directly from a nearby railroad spur, the main transformer for that turbine and the air intake filter housing will be set in place. The filter housing will be assembled on ground and lifted into place. The interface between the transformers and the switchyard will then be made.

The main east-west pipe rack ~~near the ACC~~, the control building, and the power distribution centers with the auxiliary transformers will be installed. The rack will be loaded prior to constructing the building. After the pipes are welded, inspected, and given the appropriate NDE tests, each system will be pressure tested prior to turnover for commissioning.

At the completion of construction, the final grading of the site surfaces will be performed. The roads, parking lot, and other designated areas in the power block, maintenance, and warehouse areas will be paved, while the balance of the plant area will be finished with a gravel surface. Gravel surfacing will be provided at the switchyard. All side slopes and embankments will be protected against erosion with landscaping or be seeded with grasses common to the local area.

After completion of the above activities, site landscaping and planting will commence. These include parts of the laydown areas that are to be restored and the wetland mitigation areas parallel to Grandview Road. The construction phase stormwater system will be converted to the operational stormwater system.

2.1.4.6 Commissioning

A full start-up and commissioning program will transition the Cogeneration Project from the construction phase to commercial operation. At the conclusion of successful performance testing, the Cogeneration Project will be deemed ready for commercial operation.

2.2 Project Alternatives

2.2.1 Alternative Cogeneration Project Facility Sites

2.2.1.1 Introduction

A primary function of the proposed Cherry Point Cogeneration Project plant is to provide steam for the Refinery processes. Since this steam is an essential function, proximity of the site to the Refinery is a critical factor in siting the facility. In addition, BP considered several other site selection factors including:

- Sufficient acreage
- Proximity to the Refinery
- Proximity to existing infrastructure (roads, pipelines, and transmission lines)
- Avoidance or minimization of wetland impacts
- Potential for other environmental impacts

2.2.1.2 Alternative Sites

Five sites on BP property were evaluated for the power plant. The locations of these specific sites are identified in the Siting and Wetland Alternatives Analysis for the 404(b)(1) Permit Application in Appendix H: [Technical Report on Plants and Animals](#). In addition, several other general areas within BP property boundaries were evaluated and several off-site areas were considered. Site 3 is the preferred alternative. The five specific sites evaluated were:

1. Site 1 is located east of Blaine Road and north of Brown Road, adjacent to an existing cooling tower.
2. Site 2 is located within the Refinery boundary fenceline in close proximity to Refinery components.
3. Site 3 is located 337 feet south of Grandview Road and 100 feet east of Blaine Road.
4. Site 4 is north of Grandview Road, across from Site 3, and was evaluated because it contains a moderately sized upland area adjacent to Grandview Road.
5. Site 5 is located within the Refinery boundary fenceline just south of Grandview Road and west of Blaine Road, and currently consists of a contractor parking lot and open areas.

Table 2.2-1 summarizes the ratings for the five alternative sites that were detailed in Appendix H.

TABLE 2.2-1

Summary of Ratings of Alternative Cogeneration Facility Sites

Criterion	Alternative				
	Site 1	Site 2	Site 3 (Preferred)	Site 4	Site 5
Sufficient Acreage	H	L	H	H	M
Proximity to Refinery	<u>H M</u>	H	<u>H M</u>	L	H
Avoidance of Wetlands	L	H	M	M	M
Proximity to Infrastructure	H	H	H	L	H
Avoidance of Other Environmental Impacts	H	H	H	L	<u>L M</u>
<u>Security</u>	<u>H</u>	<u>H</u>	<u>H</u>	<u>L</u>	<u>H</u>

Note: H = High (best meets criterion)
M = Medium
L = Low (does not meet or marginally meets criterion)

Other Locations Evaluated

In addition to the sites described above, reconnaissance surveys were conducted to evaluate other areas. These additional areas are described below.

Approximately 200 acres south of Site 1 were evaluated for the presence of wetlands. The entire area south of Brown Road was evaluated in the field. It was estimated that the site is approximately 90 percent wetlands, including herbaceous wetlands with high-quality forested wetlands that comprise approximately 70 percent of the area. Additionally, there are several small ponded areas that appear to be ephemeral, but hold water for extended periods of time. Old-growth trees were found on this site and large mammal and raptor species (including red-tailed hawk) and wading species (including great blue heron) were observed. This area rated low in all categories and was eliminated from further consideration.

An area east of Sites 1 and 3 was also evaluated. It consists of forested wetlands that are of higher quality in terms of their functions such as sediment detention and general habitat suitability. This area was eliminated from consideration based on the higher quality of the habitat and the associated cost of mitigating impacts to such an area.

Off-Site Locations

Locations outside of BP-owned property were not evaluated because the primary purpose of the Cogeneration Project is to supply electricity and steam to the Refinery. BP owns an extensive amount of property that surrounds the Refinery. These surrounding areas were the only feasible alternatives to ensure a reliable and efficient source of power and steam for the Refinery. Off-site locations would require more extensive pipeline interconnections, potentially impacting more priority habitats, and would significantly reduce the efficiency of steam transmission to the Refinery. In addition, the existing water supply for the Refinery contains sufficient water supply for the Cogeneration Project. An off-site location would likely make it more difficult to supply water to the Cogeneration Project from the Refinery allocation. Securing the area

would also be more costly, since an existing security system is already in place at the Refinery.

2.2.2 Alternative Cooling Systems

There are currently four cooling technology alternatives that are technically feasible for rejecting heat from the steam turbine surface condenser. These include the following:

- Dry cooling: air cooled condenser,
- Wet cooling,
- Wet/dry cooling: wet/dry evaporative tower, and
- Wet/dry cooling: hybrid system

2.2.2.1 Dry Cooling System: Air Cooled Condenser

The typical air-cooled condenser is a forced-draft configuration. The ACC consists of rectangular bundles of finned tubes arranged in staggered rows and supported on steel structures in an A-framed structure. Cooling air passes over the finned coil surfaces, condensing the steam. Steam enters the top of the coil section and condenses as it travels downward, with steam and condensate flowing in the same direction, minimizing pressure loss, and increasing the heat-transfer coefficient. Condensate collects in the bottom headers and drains into the condensate “hotwell” tank. Associated mechanical components such as inlet/outlet headers, nozzle, fans with adjustable pitch, fan deck, plenum, and drive assembly are all integrated within the same steel support structures. The ACC replaces the cooling tower, circulating water pumps, and the steam surface condenser of a typical wet cooling system.

~~BP selected a dry cooling system using an ACC for the proposed project.~~ Air-cooled condensing systems are significantly more expensive and on the average are less thermally efficient than comparable water evaporative cooling systems. They also require more land area than evaporative cooling systems. The main benefit to the ACC system is to provide cooling with significantly less fresh water consumption. Since ACC cooling is done without evaporation, ACCs do not have water vapor plumes.

BP initially selected a dry cooling system using an ACC for the proposed project to minimize water use, but was subsequently able to reach agreement with the Whatcom County PUD and Alcoa on a means of reusing cooling water currently used at the Alcoa aluminum smelter. More water will be recycled on an annual average basis than the Cogeneration Project will consume, resulting in a net decrease in the amount of water needed to be withdrawn from the Nooksack River. Air coolers are more expensive than a wet cooling system and have a larger visual impact.

2.2.2.2 Wet Cooling System

These systems are less expensive to install and have a higher thermal efficiency than dry cooling systems. The cooling effect is provided mostly by the evaporation of a portion of the circulating water stream into the atmosphere. The circulating water temperature decreases to approach the ambient air wet-bulb temperature. The cooling tower cools the circulating water, which is pumped to the condenser where the STG exhaust steam is condensed.

The wet cooling system proposed for the Cogeneration Project would require 2,028 to 2,100 gpm of industrial water on average. This water will be provided by the PUD from the 2,780 gpm of Alcoa's once-through cooling water that will be recycled.

~~The total water consumption of a wet evaporative cooling system for this size cogeneration project is variable, but would average about 3,000 gpm.~~

~~The wet cooling system was not chosen because BP does not want to materially increase water withdrawals from the Nooksack River for this project. If a way could be found to reuse industrial wastewater so that fresh water withdrawal would not rise significantly above current levels, then BP would reconsider this option.~~

2.2.2.3 Wet/Dry Cooling System: Evaporative Wet/Dry Cooling Tower

The wet/dry cooling tower uses a conventional wet cooling tower design but adds a tube bundle located inside the tower above the fill. Warm water from the cogeneration unit condenser first flows through this bundle and is cooled by air drawn through the tower by the cooling tower fan. The cooled water is then sprayed on the tower fill to achieve additional cooling through evaporation. Since the tube bundle does part of the cooling in the wet/dry design, less water is lost through evaporation than with a conventional wet cooling tower.

The ratio of dry cooling surface to wet fill can be designed for conditions ranging from a small amount of water conservation to a tower that requires the wet section only for the hottest days of summer, using 100 percent dry cooling most of the year. The wet/dry evaporative cooling tower can be designed to allow independent operation of the wet and dry section fans, or can be designed to use common fans. The wet/dry cooling tower option uses less water than does a conventional wet cooling tower, but is more expensive to construct and operate. ~~but could require an increase in water drawn from the Nooksack River. BP does not wish to materially increase water drawn from the Nooksack River beyond current levels for this project.~~

2.2.2.4 Wet/Dry Cooling: Hybrid Cooling System

Another option is to use both an ACC and a cooling tower in parallel to cool water from the cogeneration unit condenser. The cooling tower is controlled to reduce water consumption and only dry cooling is used during cold months. The benefit of an evaporative cooling tower and ACC hybrid cooling system is that the ACC and the evaporative cooling tower can be closer to standard manufacturer's designs, which are less costly than a custom wet/dry evaporative cooling tower design. The negative side of an evaporative cooling tower and ACC hybrid cooling system is that the engineering design effort is increased since the number and interaction of components that must be designed for the two autonomous systems is greater. The land area for the evaporative cooling tower and ACC is greater than that of an ACC alone, since they both must have substantial open area around their perimeter to prevent interference with the air inlet path. The hybrid option also uses less water than does a conventional wet cooling tower, but could require an increase in water drawn from the Nooksack River. BP does not wish to materially increase water drawn from the Nooksack River beyond current levels for this project. The evaporative cooling tower and ACC hybrid cooling system was

eliminated from consideration ~~for these reasons~~because of the cost and complexity of system design and operation.

2.2.3 Alternative Power Generation Technologies

The alternative power generation technologies that were evaluated were limited to technologies that could produce both steam and electricity.

2.2.3.1 Cogeneration Combined-Cycle

A cogeneration plant produces both electricity and useful thermal energy, usually steam or hot water. The thermal energy and usually a portion of the electricity are exported to an industrial “host” facility for use. The cogeneration unit can produce thermal energy more efficiently than the host can with boilers or heaters. The host can make fuller use of the thermal energy than could a combined cycle power plant. Together these effects raise the overall efficiency of the cogeneration unit. The following sections provide an overview of the alternative power generation technologies considered for the proposed Project. Cogeneration is the preferred generation technology because it is the only one that meets the purpose and need of the Project.

2.2.3.2 Stand-Alone Combined-Cycle

This technology integrates combustion turbines and steam turbines to achieve higher efficiencies. The combustion turbine’s hot exhaust is passed through a HRSG to create steam used to drive a steam turbine generator (STG). This technology is able to achieve thermal efficiencies up to approximately 53 percent, considerably higher than most other alternatives. This high efficiency also results in relatively low air emissions per kilowatt-hour generated. The capital investment for the combined-cycle plant is significantly less than either a boiler or fluidized-bed combustion plant. For these reasons, the stand-alone combined-cycle would be considered the benchmark against which all other power base-load and intermediate-load technologies are compared. Because of its high efficiency and superior environmental performance, combined-cycle technology is an integral part of the proposed Cherry Point Cogeneration Project. However, the stand-alone combined cycle facility is less efficient than a cogeneration facility, and would not produce steam for use at the Refinery.

2.2.3.3 Conventional Boiler and Steam Turbine

This technology burns fossil fuel (gas, oil, coal, etc.) in a conventional boiler to generate steam to drive a STG. Process steam can be extracted directly from the STG or let down from the main steam header. The STG exhaust steam is then condensed and returned to the boiler. Make-up water is added to the steam cycle to replace process steam not returned as condensate. This is an established technology that is able to achieve approximately 30-40 percent thermal power generation efficiency when utilizing natural gas. Due to this relatively low thermal efficiency, higher emissions, high capital and operating costs, the conventional boiler and steam turbine technology were eliminated from consideration for the proposed Project.

2.2.3.4 Fluidized Bed Combustion and Steam Turbine

Fluidized bed combustion is an alternative to the conventional boiler for generating steam, especially while burning high sulfur-bearing, difficult-to-burn fuels such as petroleum coke, a byproduct of the petroleum refining industry. The coke produced by the BP Refinery is used to make anodes for the aluminum industry.

A fluidant such as limestone is added to the fluidized bed to capture in-situ sulfur oxides produced during the combustion process. The amount of limestone used is significant, about one-third ton of limestone for every ton of coke burned. The systems required to import, transport, crush, and size this quantity of limestone can have significant environmental impacts.

The hot combustion flue gas is cooled by raising steam which drives a steam turbine. Thermal efficiencies are comparable to the conventional boiler technology (approximately 36 percent). A large quantity of calcium sulfate is generated as a byproduct. This material can be used to manufacture gypsum board or used as road fill material. If local markets do not exist for these products, potential environmental impacts from waste disposal and additional costs are high.

With this technology there are increased costs for capital installation, higher labor costs, high reagent (limestone) costs, and solid waste disposal costs. Because of the environmental concerns with solid waste disposal, higher emissions, higher costs, and the low thermal efficiency, the fluidized bed combustion technology was eliminated from consideration for the proposed Project.

2.2.3.5 Other Alternative Technologies and Fuels

Technologies based on fuels other than natural gas were eliminated from consideration because they do not meet the project objective of achieving the environmental and operational advantages. Additional factors that render alternative fuel technologies unsuitable for the proposed project are as follows:

- No geothermal or hydroelectric resources exist in the area.
- Biomass fuels such as wood waste are not locally available in sufficient quantities to make them a practical alternative fuel.
- Solar and wind technologies are generally not continuous and not capable of producing the large quantities of steam needed to supply the BP Refinery.
- Coal and heavy fuel oil technologies emit more air pollutants than technologies utilizing natural gas.

The availability of natural gas and the environmental and operational advantages of natural gas technology make natural gas the logical choice for the proposed Cogeneration Project.

2.2.4 Alternative Wastewater Disposal Methods

The Cogeneration Project wastewater streams include process wastewater, sanitary wastewater and equipment drainage, washdown or rainfall runoff water from curbed areas that could potentially have been contacted with oil from equipment. The preferred

method for disposal of process and potentially oil-bearing wastewater is to send it to the Refinery's wastewater treatment system. The existing Refinery systems have the capacity to handle the small wastewater streams from the proposed Project. Construction of new wastewater treatment facilities for the Cogeneration Project would be expensive and would not provide any additional environmental benefit.

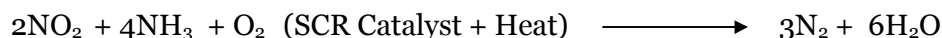
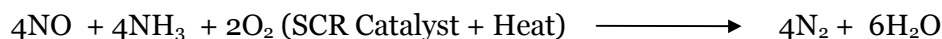
A zero liquid discharge facility was also evaluated as part of an evaporative cooling system. Such a facility would combine the Refinery and Cogeneration Project wastewater and would use evaporation to separate solids from the water. The water with dissolved solids would be evaporated and solids removed from the water vapor. The water vapor would then be condensed and recycled back to the industrial water system for reuse. This system would have the advantage of [further](#) conserving fresh water since the water is recycled for use within the plant. However, the separation process would generate up to 90 tons per day of solids. The solid wastes, while not hazardous, would be soluble and would have to be disposed in a suitable landfill. This would be a large volume of material requiring offsite disposal on a daily basis, thereby increasing truck traffic significantly. Equipment for a zero liquid discharge plant is also costly. The zero liquid discharge option was not selected due to solid waste disposal requirements, operating complexity and higher cost.

2.2.5 Alternative Emission Controls

2.2.5.1 SCR

SCR was chosen for emission control on the Cogeneration Project. SCR is a commonly used post combustion NO_x reduction stack gas treatment approach for small and large HRSG installations. As a proven technology, it satisfies BACT criteria for air emission control levels and has a good record of reliability and catalyst life in clean, gas-fired service.

SCRs utilize a metal, acrylic, or zeolite base type catalyst to selectively promote a rapid chemical reaction between ammonia (NH₃) and nitrogen oxides (NO_x). The basic chemical reactions are:



As shown, these chemical reactions are typically achieved with the proper introduction of anhydrous ammonia or aqueous ammonia solution in the flue gas stream. Typical conversion efficiency range is 80-90% of NO_x. The [maximum 24-hour average](#) concentration of ammonia slip/~~leakage at the end of catalyst life~~ would [average be](#) 5 ppmv @ 15% O₂ in the exhaust gas exiting the stack, ~~on an annual basis, but would not exceed 10 ppmv @ 15% O₂.~~

2.2.5.2 SCONOX

SCONOX uses a catalyst bed technology akin to that used in an SCR. SCONOX catalyst does not require ammonia to help convert NO_x to N₂. However, the SCONOX catalyst does get saturated during operation and requires periodic regeneration with a dilute hydrogen stream. A system of slide valves takes alternate beds of SCONOX catalyst in

and out of service as required for regeneration while the gas turbines are operating. The project team reviewed SCONOX technology with the vendor and requested a quote for the system. The SCONOX system cost was found to be much higher than the cost of the SCR system. The SCONOX option was rejected due to the high capital cost, and operating and mechanical complexity of the system.

2.2.5.3 XONON

XONON technology uses a catalyst in the gas turbine combustion chambers to combust natural gas rather than using a flame. The catalytic combustion takes place at a lower temperature and thus produces lower amounts of NO_x and CO. Enron invested in Catalytica, the creators of XONON catalyst, agreed to test the catalyst at its Pastoria Energy Facility in Southern California. This facility was subsequently sold to Calpine and the current status of XONOX technology testing is uncertain. Until proven commercially, XONON is considered to be experimental.

2.2.6 Alternative Electrical Interconnection Schemes

The Cogeneration Project would be connected to BPA's existing 230 kV transmission line located about 0.8 miles east of the project site. This new transmission line would be entirely on BP property.

BPA performed a single contingency analysis for the Cogeneration project and Refinery load along with the potential Alcoa load on their two existing 230 kV transmission lines. This analysis was intended to determine whether each line by itself could carry all combinations of loads and generation possible in this system should the other transmission line fail. The analysis showed that under certain combinations of electrical loads, and when certain sections of transmission line are lost, one or more portions of the remaining line could exceed its thermal operating limit of 100 degrees Celsius. Whether or not this occurred would depend upon the ambient temperature at the time of the line loss. At or below about 68F, the remaining line would always have sufficient capacity; above 68F, the line would begin to exceed its temperature limit. This effect increases as ambient temperature increases. At 95F (the maximum expected outside temperature) and the worst contingency case, the overload would be about 40 MW, or 7% of the allowable line capacity. Although this combination of events is very unlikely, it must be provided for in the system design. Three options are being considered to address this situation:

2.2.6.1 Use remedial action scheme

A remedial action scheme could be used to reduce load or generation on the 230 kV system if the combination of events described above occurred. The remedial action scheme would define how loads would be reduced in the event of a line loss. A remedial action scheme would not require any physical changes to the 230 kV lines or towers, but it would require an agreement between the Refinery, Alcoa and the Cogeneration Project. Given the small likelihood of a line outage, BP prefers this option because it would minimize environmental impact and involves no changes to existing transmission lines or towers.

2.2.6.2 Add second transmission line from the Refinery to the Custer substation

A second transmission line could be installed inside the existing 4-mile 230 kV line corridor that leads from the Refinery to the Custer substation. The existing transmission towers in this roughly 4-mile long segment are not strong enough to carry a second circuit so the existing towers would need to be replaced with new stronger monopole or lattice towers. The towers would likely be replaced one-at-a-time, temporarily supporting the existing wires as each tower is replaced. Some foundation work would likely be required to accommodate the new towers; therefore some impact to land within the existing right-of-way is anticipated for this option. BPA would also be required to add two breakers to the Custer substation ring buss to accommodate this new line. Under this option, no remedial action scheme would be required to reduce load or generation should any single contingency occur.

2.2.6.3 Reconnector existing 230 kV lines

Replace the existing 230 kV transmission lines with higher capacity lines. This option may require upgraded or new towers if a wire type is not found which provides the required capacity with the same weight as the existing wire. If a wire type can be found with similar weight and sufficient capacity certain tower modifications may still be required. Under this option, no local remedial action scheme would be required. At the time of this ASC amendment, several wires have been evaluated but a suitable wire type has not been found.

2.2.6.2.7 Description of the No Action Alternative

~~2.2.6.1~~ 2.2.7.1 Electricity and Steam Generation

Under the No Action Alternative, the Cogeneration Project would not be constructed and existing boilers at the Refinery would remain in operation. The 720 MW of power not produced by the Cogeneration Project would have to be provided by other power plants in the region.

In this alternative, criteria pollutant air emissions would not be offset by a shutdown of equipment at the Cherry Point Refinery. To produce the same amount of power from state-of-the-art stand-alone power plants, approximately 950 additional tons of criteria pollutants would be emitted into the atmosphere each year (see Table 2.1-1). Since other gas-fired power plants are not as efficient as the proposed Cogeneration Project, more natural gas or other fuels would be burned to create the replacement power.

Water use would be higher for the replacement power under the no action alternative. ~~About twice the amount of fresh water would be required to produce the replacement power, assuming air cooling is used. If air cooling were not used. If water cooling were used without recycled water,~~ significant amounts of surface water or groundwater would be required to produce the replacement power.

Under the No Action Alternative, it is assumed that future demand for power will require the construction of new power plants. However, power plants built in other locations may require the construction of more infrastructure, including transmission lines, natural gas pipelines, water lines, and access roads, because the existing infrastructure is not adequate for power plants.

~~2.2.6.2~~2.2.7.2 Air Emissions

Under the No Action Alternative, the Refinery would continue to use older, less efficient boilers for steam and would either purchase electricity or use on-site turbines to generate electricity. The emissions from this equipment would likely be comparable to today's emissions. The Cogeneration Project ~~is committed to achieving~~ expects to achieve a net reduction in the emission of total criteria pollutants. Stand-alone power projects are not able to make similar commitments. If this plant is not built, other stand-alone power plants will eventually be built and criteria pollutant emissions will likely increase.

Under the No Action Alternative, the Cogeneration Project would not emit carbon dioxide to the atmosphere. However, approximately 600,000 tons per year of additional carbon dioxide emissions would be created in order to generate the electricity and steam needed at the Refinery. Likewise, other power plants operating to satisfy regional electricity demand would likely emit carbon dioxide in greater amounts than the Cogeneration Project.

~~2.2.6.3~~2.2.7.3 Land Use

Under the No Action Alternative, there would still be a need for additional power generating capacity in the region. Impacts would simply occur at another location. Under the No Action Alternative, there would be no immediate plans to utilize the acreage proposed for the Cogeneration Project site. However, the site is located in the Major Industrial Urban Growth/Port Industrial Area zone, and might be used for other industrial development at a later date.

Under the No Action Alternative, another power plant or an expansion to an existing power plant would likely be built in the region to provide replacement power not generated by the Cogeneration Project. Approximately the same amount of land would be required for this replacement plant. The impact on land use is unknown.

~~2.2.6.4~~2.2.7.4 Plants and Animals

Under the No Action Alternative, neither the wetland impacts at the project site, nor the planned wetland creation and enhancement would occur. However, the project site would still be zoned for "heavy impact industrial" development and would likely be developed eventually

~~2.2.6.5~~2.2.7.5 Socioeconomic

Under the No Action Alternative, Whatcom County would not experience the tremendous economic benefits that would be associated with the construction and operation of the Cogeneration Project. No new jobs would be created in Whatcom County for construction or for operation and maintenance of the Cogeneration Project. Additional tax revenues could be generated from a replacement power generation project built in another jurisdiction in Washington State. If this replacement power generation project were built in another state, Washington would lose sales tax revenues of about \$30 million on construction costs, and annual property taxes on the plant value.

BPA states in the Infrastructure Technical Review Committee Report (dated August 30, 2001) that additional generation in the Puget Sound area would help transmission system stability and could defer some spending on transmission system upgrades, specifically the \$25m "Shultz series capacitors" project. On page D-19 of the report, BPA writes:

"Winter peak loads [in Puget Sound area] are growing about 200 MW annually (1/5 the size of the city of Seattle). For this condition, without Schultz series capacitors, the Puget Sound area is at risk of voltage collapse leading to significant load loss for outages of 500-kV lines feeding the Puget Sound area. Since the area has become saturated with shunt compensation, the next alternative is to build a new cross-Cascade Mountain transmission line from the Grand Coulee area into the Puget Sound area. Construction of this project is the only means of meeting immediate load growth and delays the need for the next cross-Cascade transmission reinforcement. The next step after the series capacitor installation could be an upgrade of a 115-kV line to a 230-kV operation between the Mid-Columbia and the Puget Sound area. The date of need for the project could be delayed if Canadian Entitlement return were purchased within the US, or if additional generation were developed to serve Puget Sound area loads."

[2.2.6.2.7.6](#) Health and Safety

Neither the No Action Alternative nor the Cogeneration Project present any significant health and safety risks (see Section 3.16 of Part II). Under the No Action Alternative, however, the general welfare, public health, and safety of Washington State citizens would not be improved as a result of an increased power supply. The State and region would remain vulnerable to increased power costs, supply variability, and potential shortages.

2.3 Benefits or Disadvantages of Reserving Cogeneration Project Approval For a Later Date

The result of reserving approval of the Cogeneration Project to a later date is the same as the No Action Alternative case. There is a long-term need for additional electrical generating capacity in the state and region, and new power plants will be built in Washington and Oregon. From an environmental standpoint, it is unlikely that they would compare favorably to the Cogeneration Project.

Delaying approval decisions would also create uncertainty for the funding of project, and could delay Commercialization well beyond the requested transmission contract start date with BPA.

2.4 Pertinent Federal, State and Local Requirements

The following section identifies Federal, State, and local codes, ordinances, statutes, rules, regulations and permits that would apply to the project if it were not under the jurisdiction of the Washington Energy Facility Siting Evaluation Council (EFSEC). BP will be responsible for acquiring federal permits and approvals, but will obtain all state and local permits and approvals through EFSEC. These sections also describe how the

project would comply or fail to comply with each requirement, or why a specific requirement is not appropriate or relevant to the Cogeneration Project.

In some instances federal rules and regulations govern permit requirements, although approval authority is delegated to state or regional agencies. Similarly, some state regulations may involve review and approval at the county or local level. In the following narrative, permit requirements are generally addressed at the level where regulatory compliance is formulated for policies and requirements, and not necessarily at the level of enactment. For example, a regulation promulgated as a federal statute may be addressed under Washington State Permits if enactment is typically provided at the state level.

Table 2.4-1 summarizes federal, state and local or regional requirements.

2.4.1 Federal Permits

2.4.1.1 National Environmental Policy Act

National Environmental Policy Act (NEPA) compliance is required prior to issuing any federal permits or approvals for the construction or operation of the BP Cherry Point Cogeneration Project. The purpose of this compliance is to ensure that federal decision-makers fully consider environmental impacts of the proposed action.

Statement of Compliance

A joint NEPA/SEPA environmental impact statement (EIS) will be prepared by EFSEC and BPA to evaluate the environmental issues and opportunities associated with the proposed Cogeneration Project. This document would address all relevant connected actions including the generation plant, power integration, and related facilities.

TABLE 2.4-1

Pertinent Regulations, Statues, and Ordinances

No.	PERMIT, APPROVAL, OR REVIEW	AGENCY WITH JURISDICTION	EVALUATION / ISSUE	STATUTE OR REGULATION
Federal				
1	National Environmental Policy Act (NEPA)	Bonneville Power Administration	Environmental Review / Compliance	42 USC ss. 4321 et seq.; 40 CFR 1500 et seq.; 10 CFR 1021
2	Endangered Species Act	U.S. Fish & Wildlife Service, Nat. Marine Fisheries	Endangered Species Protection	ESA ss. 7, 16 USC ss. 1531 et seq.; 50 CFR 402
3	Federal Coastal Zone Management Act	WA Department of Ecology	Coastal Resources Protection	16 USC ss. 1451 et seq.; 15 CFR Parts 923-930, Chapter 173-27 WAC
4	Clean Water Act, Section 404	U.S. Army Corps of Engineers	Wetlands	33 USC 1344, Section 404; 40 CFR 231 (Authority), 233 (State); 33 CFR 320-330
5	National Pollutant Discharge Elimination System Permits	U.S. EPA, Clean Water Act (by Washington Department of Ecology)	Discharges from Point Sources	40 CFR Part 122; also see # 13-15 under Washington State
6	U.S. Dept. of Transportation, Office of Pipeline Safety	WA Utilities and Transportation Commission	Gas Pipeline Safety	49 CFR 192, WAC 480-93; Title 80 RCW; Chapter 81.88 RCW
7	National Historic Preservation Act (NHPA)	WA Archaeology and Historic Preservation	Historic and Cultural Preservation	NHPA, ss. 106; 16 USC ss. 470 et seq.; 36 CFR ss. 60-63, 800; et al.
8	Notice of Proposed Construction or Alteration	U.S. Department of Transportation, FAA	Airspace / Aviation Clearance	CFR Title 14, Part 77; USC Section 44718; Advisory Circular 707460.2K
9	Oil Spill Protection and SPCC Plan	WA Department of Ecology	Oil Spill Protection	Clean Water Act, 33 USC 1251; 40 CFR 112
10	Accidental Release Prevention and Risk Management Plan	WA Department of Ecology	Fuel Storage / Safety	40 CFR 68, Chapter 90.56 RCW
11	Environmental Justice	All Federal Agencies or Relegated Entities	Impacts on Minorities and Low Income	Executive Order 12898
Washington State				
12	Prevention of Significant Deterioration (PSD) Permit	EFSEC	Air Quality	RCW 70.94; WAC Chapter 173-400; 40 CFR ss. 52.21
13	Industrial Wastewater Discharge Permit	Department of Ecology / Water Quality	Water Quality	RCW 90.48.160; WAC Chapter 173-216 WAC
14	Stormwater Construction Discharge Permit	Department of Ecology / Water Quality	Water Quality	40 CFR Parts 122.123 & 124, Subchapter D; RCW Chapters 80.50 & 90.48; et al.
15	Stormwater Industrial Discharge Permit	Department of Ecology / Water Quality	Water Quality	(see previous)
16	Dangerous Waste Generator and Reporting Identification Number	Department of Ecology	Hazardous Waste	Chapter 173-303 WAC; Chapter 70.70.105 RCW
17	Solid Dangerous and Hazardous Wastes	Department of Ecology	Management of Wastes	Haz. Waste Mgmt. Act, 0.105A RCW; 36.58 RCW; 70.95 RCW
18	Hazardous Substances / Worker and Community Right-to-Know Act	Department of Ecology / Military Department	Public Awareness	Chapters 70.105 & 70.136 RCW; Worker and Community Right-to-Know, 49.70 RCW
19	Transportation and Highway Access	Department of Transportation (WSDOT)	Access from State Highway	Washington Highway Access Management, 47.50 RCW
20	Clean Water Act, Water Quality Certification	Department of Ecology / EFSEC	Water Quality	Federal Clean Water Act, Section 401; Chapter 173-225 WAC
21	Notice of Construction Approval and New Source Review	Northwest Air Pollution Authority (NWAPA)	Air Quality	Clean Air Act, RCW 70.94; Chapter 173-400 WAC; Chapter 173-460 WAC
22	Acid Rain Permit	NWAPA	Air Quality	EPA, 40 CFR 50; 40 CFR Parts 72, 75, 76; Ch. 173-401 WAC; Ch. 173-406 WAC
23	Air Operating Permit	NWAPA	Air Quality	RCW 70.94; Ch. 173-401 WAC; Precipitation Act of 1980, Title 4, 42 USC ss. 8901
24	Noise Regulations	Whatcom County (per State standards)	Noise Control and Abatement	Chapter 70.107 RCW; Chapters 173-60 and 173-62, WAC
25	Washington Utilities and Transportation Commission	Washington Utilities and Transportation Commission	Natural Gas Pipeline	WAC 480-93; ASME B31.8

Bonneville Power Administration (BPA) will act as the lead NEPA federal agency and review power transmission facilities. BPA would also assure that NEPA compliance is fulfilled, in association with EFSEC. Both entities would consult with other state and federal agencies as required.

2.4.1.2 Endangered Species Act

The Endangered Species Act of 1973, as amended provides conservation and protection measures for listed threatened or endangered species. This Act requires federal agencies or their designees to consult with the appropriate agencies when a federal action may affect a listed species so as not to jeopardize the continued existence of such species or result in destruction or an adverse modification of critical habitat.

The proponent of the action must identify whether or not any listed species may occur within the project area, and if protected species may be adversely affected by facility construction or operation. Assessment procedures typically involve initial consultation and follow-up communication as necessary with designated agencies, including the U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS). Depending on initial findings and identification of potential impacts on federally listed species, a biological assessment may be prepared to evaluate how best to avoid jeopardizing listed species.

Statement of Compliance

The proposed plant site is located on a fallow agricultural field adjacent to an industrial site, and habitat suitable for listed animal species is generally not present. In addition, no sensitive plant species occur within the proposed project site (see Section 3.4, Wetlands and Vegetation). Site surveys have been conducted to determine the presence or absence of listed species and/or their habitat. Agencies including the Department of Natural Resources National Heritage Program, Washington Department of Fish and Wildlife, and the Federal FWS have been contacted. To date, no listed species have been observed on the project site. A Biological Evaluation, in accordance with the Corps of Engineers guidelines published in February 2001, has been prepared and is provided in Part III, Appendix H.

2.4.1.3 Federal Coastal Zone Management Act

Washington Department of Ecology (WDOE) administers the Coastal Zone Management Program for the 15 counties with saltwater shorelines within Washington. The state will require federal projects (and private projects that need federal approval) to meet state coastal zone management plan (dated February 2001) requirements. WDOE reviews the projects for consistency with state environmental requirements.

Washington's Coastal Zone Management (CZM) program is a "networked program" that relies on existing state environmental laws to address coastal zone issues. In conjunction with the Shoreline Management Act (SMA), the State Environmental Policy Act (SEPA), state's version of the federal Clean Air and Clean Water Acts, and EFSEC rules all contribute to Washington's CZM program.

Statement of Compliance

The project site is not subject to the SMA, and is not within either the 100-year or 500-year floodplain or within 200 feet of the ordinary high water mark of a state shoreline. However, wetlands within any of the 15 coastal counties of Washington are still subject to the CZM.

2.4.1.4 Clean Water Act, Section 404

An Army Corps of Engineers (Corps) Section 404 permit is required to locate a structure, excavate, or discharge dredge or fill material into waters of the United States, including most wetlands. A Corps individual permit is required for proposals that are not authorized under a nationwide permit. The Corps has primary responsibility for the Section 404 permit program and must evaluate whether the benefits from the project outweigh the predicted environmental impacts. Because the Cogeneration Project would impact wetlands above the threshold to qualify for a nationwide permit, an individual Corps 404 permit will be required.

Statement of Compliance

Construction at the proposed project location would impact wetlands at the project site. An application for an individual Section 404 Permit has been submitted to the Corps for the proposed project. BP is preparing a wetland mitigation plan, and will submit it to EFSEC following consultation with interested federal and state agencies. Approval by the Corps of Engineers will be obtained through the Section 404 Permit process.

2.4.1.5 Clean Water Act, Section 402: National Pollutant Discharge Elimination System (NPDES) Permits

The Clean Water Act requires discharges of point sources to waters of the U.S. to apply for and obtain permits as required under 40 CFR Part 122. Point discharges include industrial wastewater, stormwater from construction activities, and stormwater from industrial operations. The NPDES program is delegated to the Department of Ecology and EFSEC.

Statement of Compliance

Compliance is described in Subsections 2.4.2.2.through 2.4.2.4 under Washington State Permits.

2.4.1.6 U.S. Department of Transportation, Office of Pipeline Safety

Congress passed the Natural Gas Pipeline Safety Act in 1968 (now called the Pipeline Safety Law 49 U.S.C. Section 60101, et seq.). The Law gives the federal government authority over pipeline safety for transporting hazardous liquids, natural, and other gases. The intent of the Law is for states to assume responsibility for intrastate pipeline safety, while the federal government [U.S. Department of Transportation, Research and Special Programs Administration, Office of Pipeline Safety (OPS)] retains responsibility for interstate pipeline safety.

The Cogeneration Project will be using the existing proprietary Ferndale Natural Gas Pipeline, which is an intrastate pipeline, and some work will be required to install a compressor station at the Refinery and build connecting piping to the Cogeneration Project. If additional gas were needed, it would be obtained from a third party.

Statement of Compliance

See compliance statement under Washington Utilities and Transportation Commission, Section Subsection 2.4.2.14.

2.4.1.7 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) mandates that a proposed action take into account its effect on objects, buildings or structures, and historic properties where resources have been identified on sites that are either included, or may be eligible for, inclusion and listing on the National Register of Historic Places (NHRP). If the action or project is likely to meet this criterion, then the Washington State Office of Archaeology and Historic Preservation (OAHP) is consulted in order to find acceptable means to avoid or mitigate adverse effects. EFSEC will consult with Indian tribes and various parties or groups as appropriate in their designated responsibilities. Any national landmarks relevant to the nation's natural heritage would similarly be identified and suitable preservation measures taken.

In addition to the NHPA, the following federal laws are also applicable:

- Antiquities Act of 1906
- Historic Sites Act of 1935
- American Indian Religious Freedom Act of 1978
- Archaeological Data Preservation Act of 1974
- Archaeological Resources Protection Act of 1979
- Native American Graves Protection and Repatriation Act of 1990

Applicable Washington State codes and regulations include WAC 173-26-220 General master program provisions, (1) Archaeological and historic resources; also RCW 27.53, Archaeological Sites and Resources, RCW 27.34, State Historical Societies – Historic Preservation, and RCW 84.26, Historic Property.

Statement of Compliance

Archaeological, historical, and cultural resource studies, in compliance with NHPA, for the project site ~~are currently being~~ have been conducted. The results of those studies are discussed in this ASC. ~~and will be provided to EFSEC when complete.~~

2.4.1.8 Notice of Proposed Construction or Alteration

The Federal Aviation Administration (FAA) requires notification and lighting of objects that might pose a hazard to aviation. The applicable paragraphs and references are as follows: Title 14 CFR Part 77 specifies the criteria for determining whether a “Notice of Proposed Construction or Alteration” is required for potential obstruction hazards; FAA

Advisory Circular No. 70/7460-2K, *Proposed Construction or Alteration of Objects that May Affect the Navigable Airspace* provides information and explains notification requirements; FAA Advisory Circular No. 70/460-1G, *Obstruction Marking and Lighting* describes the FAA standards for marking and lighting objects that may pose a navigation hazard as established using the criteria of 14 CFR 77; and FAA Advisory Circular No. 70/460-2H, which relates to the filing of a “Notice of Proposed Construction or Alteration”.

If lighting is required, the project would also have to meet established guidelines by the U.S. Fish and Wildlife Service, Division of Migratory Bird Management. These guidelines specify lighting to be used for tall stacks in major bird flyways. The guidelines are entitled “Service Guidance on the Siting, Construction, Operation and Decommissioning of Communications Towers, dated 9/14/00.

Statement of Compliance

Discussion with the FAA determined that lights would not be required on the emission stack or other tall structures on the site (Pers. Comm., Duane Van Hoosen, FAA, November 2, 2001; [Pers. Comm., James Riley, FAA, March 17, 2003](#)). The location of the project and the height of the structures do not meet the criteria for filing a *Notice of Proposed Construction or Alteration* (Form 7460-1) with the FAA.

2.4.1.9 Oil Spill Protection and SPCC Plan

The Clean Water Act, 33 U.S.C. 1251, et seq., together with 40 CFR 112 identifies procedures, spill response plans, and equipment requirements to prevent the accidental discharge of oil or other petroleum products into the waters of the United States. The U.S. Environmental Protection Agency (EPA) has jurisdiction and enforcement authority with respect to these regulations. These provisions exclude consideration of manmade features (dikes or other structures) that may prevent a discharge from reaching navigable waters or adjoining shorelines. In the State of Washington, federal program responsibility is delegated to WDOE.

Statement of Compliance

The Cogeneration Project will ~~be addressed in the existing Emergency Response Plan and prepare~~ a Spill Prevention, Control, and Countermeasures (SPCC) plan ~~to meet the requirements of WAC 463-42-205, WAC 463-42-525 and CFR 112s for the Refinery.~~ [These plans are addressed in Part III, Appendix J.](#)

2.4.1.10 Accidental Release Prevention and Risk Management Plan

EPA’s chemical accident prevention regulations are defined and requirements are outlined in Title 40 Protection of Environment (Chapter 1, Part 68), Chemical Accident Prevention Provisions. The objective of these regulations is the prevention of accidental releases, but the regulations also address the list of regulated toxic substances, threshold quantities, and accident prevention regulations promulgated under this part. For example, anhydrous ammonia storage in excess of 20 percent and 10,000 pounds is subject to this regulation.

The Risk Management Plan (RMP) addressed in subpart G of Part 68 requires the owner or operator to submit a single RMP for all covered processes, either three years after the date on which a regulated substance is first listed or the date on which a regulated substance is first present above a threshold quantity in a process.

Washington Department of Labor and Industries has also developed safety standards for process safety management of highly hazardous chemicals, which establishes requirements for preventing or minimizing consequences of releases of toxic, reactive, flammable or explosive chemicals.

Statement of Compliance

The Cogeneration Project includes the storage of 60,000 pounds of anhydrous ammonia. ~~The Refinery's existing~~ The Project will prepare an Accidental Release Prevention and Risk Management Plan ~~will be modified~~ to cover this ammonia storage. The plan ~~is~~ will be based upon EPA's General Risk Management Program Guidance (revised May 2000).

2.4.1.11 Environmental Justice

Executive Order 12898 signed in February 1994 requires the EPA and other federal agencies to develop strategies to address any disproportionately high or adverse health or environmental effects of their activities and programs on minority and low-income populations. BPA is the lead agency to ensure compliance with the Executive Order.

Statement of Compliance

The requirements of this Executive Order would be addressed through the NEPA process by BPA.

2.4.2 Washington State Permits

2.4.2.1 Prevention of Significant Deterioration (PSD) Permit

The Cogeneration Project is required to obtain a PSD permit as a new major source, subject to applicable regulations and focusing on incorporation of preventative measures designed to lessen air quality impacts. The PSD permit details the components and levels of contaminants that may be discharged to the air by the project.

Permitting requires that BACT be incorporated to assure compliance with new sources requirements as well as ambient air quality standards and limitations. The PSD permit serves to prevent degradation of air quality in areas that are in compliance with National Ambient Air Quality Standards (NAAQS) while maintaining a margin for future industrial growth. The role of the Northwest Air Pollution Authority (NWAPA) with respect to PSD requirements is described in Section 2.4.2.10.

The Department of Ecology and EFSEC have been delegated partial authority (40 CFR Part 52) to ensure that projects that represent new or modified sources of air pollution prevent the significant deterioration of ambient air quality. EFSEC has the responsibility to review and issue the PSD permit for the Cogeneration Project, pursuant to Chapter 463-39 WAC. In the absence of EFSEC, WDOE would be the permitting agency.

Statement of Compliance

An application for a PSD permit, including all required data and evaluations, has been prepared and submitted as part of the Application for Site Certification (ASC) to EFSEC (see Appendix E).

2.4.2.2 Industrial Wastewater NPDES Permit

The Washington Department of Ecology ordinarily has authority to issue wastewater discharge permits under federal and state law. The federal Clean Water Act requires that point sources discharging pollutants to surface waters obtain an NPDES permit. 33 U.S.C. §§ 1311, 1342.

Statement of Compliance

The Cogeneration Project will not need to obtain an NPDES permit for its industrial wastewater because it will not be discharging any wastewater to surface waters. Instead, the Cogeneration Project will be delivering wastewater to the Refinery for treatment in the Refinery's treatment system, [and therefore, will obtain an Industrial Wastewater permit.](#)

The Cogeneration Project wastewater will not affect the Refinery's ability to comply with its existing NPDES permit limits. However, when the Refinery renews its NPDES Permit in 2004, it will need to have it revised to include the additional wastewater stream from the Cogeneration Project.

2.4.2.3 Stormwater Construction Discharge Permit

An NPDES stormwater permit (Phase 1) is required for construction activities that disturb more than 5 acres of land and discharge stormwater to a receiving waters of the state, or to storm drains that discharge to a receiving water. A notice of intent to be covered under WDOE's General Permit for stormwater associated with construction activities must be filed with WDOE and a SWPPP must be developed in compliance with the conditions of the General Permit.

Statement of Compliance

Stormwater discharges and constructed facilities for the proposed project will comply with all state and local water quality parameters as well as construction or discharge requirements. BP will develop a detailed SWPPP prior to construction. A draft Notice of Intent and a draft NPDES permit are included in the ASC at Part III, Appendix F.

2.4.2.4 Stormwater Industrial Discharge Permit

Coverage under WDOE's General Permit for stormwater discharges associated with industrial activities will be required. BP will also have to develop a detailed SWPPP in compliance with General Permit.

Statement of Compliance

State and local compliance would be achieved with respect to all discharges from the proposed project. Requirements would include preparation and implementation of SWPPP and BMPs to limit and control stormwater pollution. The Applicant will submit a Notice of Intent to be covered by the General Permit to EFSEC and will develop a detailed SWPPP prior to operation of the project.

2.4.2.5 Dangerous Waste Generator and Reporting Identification Number

After the generation facility is completed and in operation, WDOE assigns a dangerous waste generator designation (e.g., small, medium, or large quantity generator) based on the amount of dangerous waste generated each month. Annual reporting, waste shipment manifesting, and management requirements are different for each generator status. Designated categories are "dangerous waste" (the least dangerous level of regulated waste); "extremely hazardous waste," which applies to waste regulated only in Washington State that is particularly toxic or persistent in the environment; and "acute hazardous waste", or waste listed by the EPA as particularly hazardous.

An identification number is also assigned (four digit waste codes or waste numbers, as designation results being assigned to the waste), which is necessary to identify wastes for emergency response, annual reporting, pollution prevention planning, and waste reduction planning. This is not a permit, but part of a state tracking system to maintain an inventory of dangerous waste generators. Terms of compliance and conditions are established in relationship to the wastes generated.

Statement of Compliance

The project will comply with all necessary reporting and tracking requirements. This reporting procedure will be implemented upon commencement of operation.

2.4.2.6 Solid Dangerous and Hazardous Wastes

WDOE administers both the Solid Waste and the Hazardous Waste and Toxics Reduction Program in implementing federal statutes and regulations. Ecology's Hazardous Waste and Toxics Reduction Program addresses two primary environmental threats: improper hazardous waste handling and disposal, and long-term inherent risks of hazardous waste, even when handled and disposed of properly. The purpose of the Dangerous Waste Regulations is to set out a system for safely managing and disposing of dangerous waste. Dangerous wastes are non-radioactive wastes that are disposed of in such quantity or concentration as to pose a substantial present or potential hazard to human health, wildlife, or the environment.

The WDOE has adopted Minimum Functional Standards for Solid Waste Handling (Chapter 173-304 WAC), governing solid waste disposal and recycling activities. Subsequent and ongoing changes further encourage recycling and improve the solid waste permitting system and to update facility standards and definitions.

Statement of Compliance

The Cogeneration Project will comply with WDOE's policies and standards for tracking, reporting, monitoring, record keeping, sampling, handling, reduction and recycling, and other aspects of facility operation with respect to solid and hazardous wastes. [All solid waste will be disposed of through locally contracted waste disposal operators. Spent cellulose from the returned condensate treatment system will be disposed of along with primary sludge generated within the Refinery.](#)

2.4.2.7 Hazardous Substances/Worker and Community Right-to-Know Act

In 1986, Congress passed a law to help local communities protect public health and safety and the environment from chemical hazards. This law, the Emergency Planning and Community Right-to-Know Act (EPCRA), known as Title III of the Superfund Amendments and Reauthorization Act (SARA), requires that detailed information about the nature of hazardous substances be made available to the public and that comprehensive emergency plans be prepared to deal with chemical accidents. Title III contains four major provisions: (1) planning for chemical emergencies, (2) emergency notification of chemical accidents and releases, (3) reporting of hazardous chemical inventories, and (4) toxic chemical release reporting. Federal emergency planning laws are found in U.S. Code (USC) Title 42, Chapter 116

Federal and state agencies including the EPA, WDOE's Hazardous Substance Information Office, Washington Department of Labor and Industries, and Washington Military Department, Emergency Management Division require the reporting of hazardous substances and development of emergency response plans. These agencies facilitate access to existing information on hazardous substances within a community, and request and obtain information about hazardous substances at specific locations and facilities. State statutes reference Worker and Community Right-to-Know to ensure that product and safety information is readily available, and supportive laws are found in Chapter 49.70 RCW. This involvement supports and integrates with the previously discussed topic, Accidental Release Prevention and Risk Management.

Statement of Compliance

All applicable public health-related environmental procedures and reporting policies will be followed. It is anticipated that most of the requirements will be administered by EFSEC, although the Whatcom County Health and Human Services Department and other regional entities would be consulted to assure compliance.

2.4.2.8 Transportation and Highway Access

The Washington Department of Transportation (WDOT) regulates right-of-way and traffic-related access onto state highways within the state. The Cogeneration Project is within WDOT's Northwest Region, and their Planning Office addresses access issues. The applicable statutes and regulations include Chapter 47.50 RCW, Highway Access Management; also Chapter 468-51 WAC and 468-52 WAC, Highway Access Permits that regulate and control vehicular access and ingress and egress from the State highway system.

Statement of Compliance

The Cogeneration Project will require approval to access State Highway 548. During the design process roadway improvements will be designed in accordance with accepted WDOT standards. BP will consult with WDOT to ensure that traffic issues are addressed.

2.4.2.9 Clean Water Act, Section 401: Water Quality Certification

A Section 401 Water Quality Certification will be required in connection with federal permits needed for the proposed project. For projects that are subject to EFSEC review, EFSEC issues the certification to inform the relevant federal agency (e.g., the Army Corps of Engineers in the case of the Section 404 dredge and fill permit) that the proposed activities will comply with applicable water quality standards. Authorizations from the Corps for an individual 404 permit require an individual 401 Certification from Ecology.

Statement of Compliance

The Cogeneration Project will impact wetlands, but the impacts have been minimized by siting the project to avoid wetlands of higher value and configuring [the project](#) to minimize impacts to wetlands. A ~~conceptual~~ wetland mitigation plan has been prepared to mitigate for impacts to wetlands. The Site Certification from EFSEC would include 401 Certification for authorization for wetland impacts.

2.4.2.10 Notice of Construction Approval and New Source Review

Every proposed new or modified air contaminant source is required to undergo a new source review. NWAPA, which was delegated authority from the EPA in 1995, issues a Notice of Construction (NOC) permit. Approval of a NOC by the NWAPA Board of Directors is required before any construction can take place.

In order to obtain this permit, NWAPA requires that a *Notice of Construction and Application for Approval to Construct, Install, Establish or Modify an Air Contaminant Source and/or Control Facility* form be submitted, along with a \$110 filing fee and new source review fees.

Statement of Compliance

The Cogeneration Project is subject to EFSEC review in order to receive a NOC permit. Air pollution control equipment would be incorporated into the design and other measures will be taken as necessary to meet compliance (see Chapter 3.2, Air and Appendix E, Air Quality). All relevant permit conditions will be complied with to assure that an ASC is approved in a timely manner.

2.4.2.11 Acid Rain Permit

The project will be required to comply with Phase II of the Clean Air Act Amendments, which became effective January 1, 2000 and includes Title IV acid rain criteria. This EPA program is designed to significantly reduce emissions responsible for acid deposition, namely sulfur dioxide (SO₂) and nitrogen oxides (NO_x). The Acid Rain

Permit application must be completed and submitted 24 months prior to operation, but the permit does not need to be issued prior to start-up of the plant.

Statement of Compliance

The acid rain permit application will be submitted to EFSEC in accordance with program guidelines and requirements, along with other required documentation. Estimates of actual emissions would be prepared as part of this submittal, which is required within one year of operating the facility.

2.4.2.12 Air Operating Permit

The proposed project represents a “major facility” which requires an Air Operating Permit (AOP), pursuant to Title V of the Clean Air Act (CAA). This permit is required once operation begins. An AOP is designed to compile all existing regulatory requirements for air pollution into one comprehensive document. Operating permits are required for major sources of air pollution, and permits must be renewed every five years. Permits must set forth all requirements of the Clean Air Act that apply to the source and provide monitoring and reporting provisions to enforce those requirements. Sources emitting greater than 100 tons per year of air contaminants are required to be in the Title V program.

Statement of Compliance

BP will apply for an Air Operating Permit for the Cogeneration Project that would be separate from the BP Cherry Point Refinery.

2.4.2.13 Noise Regulations

The WDOE has established State standards for maximum environmental noise levels during plant operation (construction noise is exempt from the state standards). Permissible noise levels depend on the source of the noise and the nature of the receiving environment (see Chapter 70.107 RCW and Chapters 173-60 and 62 WAC).

Permissible noise levels established by state regulations vary depending on the source of the noise (which in this case is “industrial”) and the nature of the receiving environment (in this case, largely industrial surrounded by mixed rural/agricultural). Noise performance standards established by state regulation must be met during operation of the generation facility.

Statement of Compliance

Baseline monitoring and noise impact modeling have been completed for the proposed project, which indicates that noise generated would be below applicable standards. The baseline monitoring data and modeling results are included as part of the ASC (see Part II, Section 3.9 and Part III, Appendix K).

2.4.2.14 Washington Utilities and Transportation Commission

The Washington Utilities and Transportation Commission (WUTC) is the state agency that regulates the construction, maintenance, and operation of natural gas transmission

lines. The Ferndale natural gas pipeline is a distribution line that only serves the refinery and will serve the project. A separate 8-inch natural gas line that is tied into an existing section of the pipeline serves the Intalco (Alcoa) Aluminum Corporation facility, and consequently is not included in the permitting process. The owner and operator of the pipeline are responsible for compliance with cited standards. However, no new pipelines are proposed in connection with this project action and only a new connecting line will extend to the Cogeneration Project.

Statement of Compliance

Any modifications to the existing pipeline at the refinery and the connecting pipeline to the Cogeneration Project will meet all of the American Society of Mechanical Engineers ASME B31.8 Code and other pertinent requirements of WAC 480-93.

2.4.3 Whatcom County Permits/Reviews

2.4.3.1 State Environmental Policy Act (Chapter 43.21C RCW)

The State Environmental Policy Act (SEPA) represents the Washington state equivalent of NEPA, which requires that governmental agencies consider the environmental impacts of a proposed action before making decisions. The SEPA checklist provides information to identify and quantify these impacts. A determination is made by the lead agency as to the potential impacts and this agency would issue one of three determinations: 1) Determination of Nonsignificance; 2) Mitigated Determination of Nonsignificance; and 3) Determination of Significance. An EIS must be prepared for all proposals with a Determination of Significance. The checklist also may help to identify opportunities for reducing or avoiding impacts where this may be accomplished. SEPA compliance is also required before state or local permits can be issued for construction or operation of the facility.

Statement of Compliance

EFSEC and BPA intend to prepare a joint NEPA/SEPA document to evaluate the level of environmental impacts and consequences posed by the proposed project.

2.4.3.2 Building Permit (Washington UBC, Chapter 19.27 RCW)

A local building permit would ordinarily be required for the cogeneration facility, including all associated aboveground structures and buildings from Whatcom County pursuant to Chapter 15.04 WCC. The County requires two complete sets of plans and associated calculations, and a Washington State engineer's stamp is required on this submittal. An estimated evaluation of project value (for County fee determination) is required in order to obtain a Building Permit.

The building permit covers site work, critical area review, and use of the right of way associated with development on private property. Associated permits and approvals such as plumbing, gas pipeline connection, water and sewer connection, occupancy, mechanical, and fire safety are all addressed through the building permit process. Similarly, grading, stormwater, traffic, drainage, and erosion control reviews are all triggered by the Building Permit procedure. A Revocable Encroachment Permit would be required for work in the County right of way. The Washington Department of Labor

and Industries' electrical section oversees electrical contracting, certification laws, and inspection to ensure public safety and compliance with state and national codes and standards.

Statement of Compliance

EFSEC would contract with Whatcom County to review and approve the permitting documents, including the Building Permit. Therefore, compliance with building codes and regulations will be through EFSEC, in coordination with Whatcom County. The application for Building Permit would be submitted following necessary environmental and planning reviews or other clearances, and prior to any site construction.

2.4.3.3 Excavation, Grading and Erosion Control

Whatcom County issues a Clearing Permit, plus a Fill and Grade Permit, in addition to the Building Permit (Whatcom County Municipal Code, Title 15, Chapter 15.04). The applicability of these permits would depend on the extent of site work required to provide basic site preparation. The area and degree of impact required for development at the site will determine what erosion control provisions or mitigation needs are appropriate, based on siting criteria.

Statement of Compliance

Excavation and grading approval will be obtained through EFSEC and suitable measures will be developed to provide erosion control in accordance with jurisdictional requirements. Prior to construction, final plans and engineering drawings will be submitted to EFSEC for their review and approval.

2.4.3.4 Certificate of Sewer Availability

The Refinery discharges sanitary wastes to the Birch Bay Sewer and Water District (District). New connections to sanitary sewer systems often require a Certificate of Sewer Availability. The certificate would demonstrate the willingness and ability to provide sewer services to the Cogeneration Project.

Statement of Compliance

The Cogeneration Project sanitary sewer system will connect to the Refinery's sanitary sewer system, which is connected to the District. Since the Cogeneration Project will connect to the Refinery sanitary system, a certificate may not be required.

2.4.3.5 Critical Areas Review/Determination

The Whatcom County Critical Areas Ordinance (Whatcom County Municipal Code, Title 16, Chapter 16.16) addresses a broad range of sensitive area characteristics that includes geologically hazardous areas, frequently flooded areas, critical aquifer recharge areas, wetlands, and habitat conservation areas. An evaluation is performed by Whatcom County to ascertain if the areas proposed for development are located within a critical area, and if the action as proposed adequately addresses physical and environmental conditions present at the site.

Statement of Compliance

The proposed project, as mitigated, would comply with all physical and environmental criteria to assure compliance with the Critical Areas Ordinance. Measures and actions taken to ensure compliance would be documented in the EIS and permit application(s) including impacts to wetlands.

2.4.3.6 Whatcom County Comprehensive Plan

The comprehensive plan is intended to guide growth in unincorporated Whatcom County through establishing a framework of goals, policies, and action items for growth management in the county. The plan also addresses urban growth area (UGA) boundaries and utilities.

The proposed cogeneration facility is within Whatcom County Comprehensive Plan's Major/Port Industrial UGA designation, Heavy Impact Industrial Zone, and within the proposed Cherry Point (unincorporated) UGA.

Statement of Compliance

The proposed Cogeneration Project would conform to all of the stated goals and policies for industrial development within the Cherry Point Major/Port Industrial UGA. This conformance, including related issues, is discussed within the Land Use Section (Section 3.10; also see Appendix D and Figure 1.0-3).

2.4.3.7 Zoning Ordinance

Whatcom County's Zoning Ordinance (Whatcom County Municipal Code, Title 20) contains a chapter (Chapter 20.74) that specifically addresses the Cherry Point Industrial District. Permitted uses (Section 20.74.030) for the area south of Grandview "...shall include the range of port and large scale industrial uses allowed in the Heavy Impact Industrial District." Outright permitted uses (referenced from 20.74.030) listed under Section 20.68.050, Permitted Uses include "stationary thermal power plants with generating capacity of less than 250,000 kilowatts..." Under the state law that existed at the time the zoning ordinance was adopted, Whatcom County did not have the authority to permit larger power facilities because such facilities must be permitted by EFSEC. The Whatcom County Planning Division anticipates amending the code to reflect the EFSEC's increased jurisdictional threshold. (Pers. Comm., Roland Middleton, Whatcom County, November 9, 2001).

Statement of Compliance

According to the Whatcom County Planning Department, cogeneration facilities are consistent with local zoning requirements. However, a facilities with capacity of 350 MW or greater requires EFSEC approval.

2.4.3.8 Noxious Weeds

The Washington State Noxious Weed Control Board's (Chapter 17-10 RCW) mission is to protect and preserve land and resources from the degrading impact of noxious weeds. The State Weed Board serves as the state's noxious weed coordination center and

supports the activities of 48 county noxious weed control boards and weed districts of Washington.

The Whatcom County Noxious Weed Control Board located in Bellingham, Washington is the local entity through which weed control laws are administered. Primary responsibility for noxious weed control is upon the landowner, and it is the responsibility of the county, or district, weed board to ensure weed control meets minimum standards. This may include identification efforts and help in developing an integrated and comprehensive plan for weed control which is specific to site characteristics.

Statement of Compliance

Noxious weeds will be controlled on the Cogeneration Project site in accordance with any directives provided by EFSEC in consultation with Whatcom County Noxious Weed Control Board. This may include prescribed protective measures and controls, or action for early detection of any new infestations.

2.5 Coordination and Consultation with Agencies, Indian Tribes, the Public and Non-Governmental Organizations

BP has been communicating and meeting with agencies, Indian Tribes, the public, and non-governmental organizations throughout the Cogeneration Project development process. Formal meetings and presentations about the Cogeneration Project are listed in Table 2.5-1. The meetings and presentations were to inform stakeholders of the proposed project and to solicit their comments.

Table 2.5-1

BP Coordination and Consultation with Governmental Entities and
Non-Governmental Organizations or Groups

Date	Entity, Organization or Group
2/5/2001	Lummi Indian Nation
4/11/2001	Air and Waste Management Association
4/19/2001	Northwest Energy Coalition
4/20/2001	Lower Fraser Valley Air Quality Coordinating Committee
4/20/2001	Val Meredith, Member of Parliament, Surrey, White Rock & Langley
5/2/2001	Potential Site Study agency meeting and public open house
5/16/2001	Greater Vancouver Regional District
6/13/2001	Washington Department of Ecology
6/14/2001	Whatcom County Planning Department
6/20/2001	Tullalip Indian Tribe
6/21/2001	Lower Fraser Valley Air Quality Coordinating Committee
6/26/2001	Fraser Valley Regional District
6/28/2001	Washington Office of Attorney General
7/12/2001	Washington Department of Ecology
7/13/2001	Birch Bay Residents
7/24/2001	Washington Dept. of Community Trade & Economic Development
7/24/2001	Washington Department of Ecology
7/31/2001	Washington Department of Ecology
8/10/2001	Joyce Murray, B.C. Minister of Water, Land and Air Protection
9/25/2001	Greater Vancouver Regional District
10/5/2001	Nooksack Indian Tribe
10/12/2001	Doug McCallum, Mayor of Surrey
11/6/2001	Whatcom County Public Utility District
11/16/2001	Gordon Hogg, MLA for Surrey and White Rock
11/29/2001	Don Fast, Environment Canada Director General
12/13/2001	Washington Department of Ecology
1/23/2002	U.S. Army Corps of Engineers
6/10/2002	Sam Crawford, Whatcom County Council
6/11/2002	Seth Fleetwood, Whatcom County Council

Date	Entity, Organization or Group
<u>6/11/2002</u>	<u>Dewey Desler, Whatcom County Deputy Administrator</u>
<u>6/12/2002</u>	<u>Barbara Brenner, Whatcom County Council</u>
<u>6/17/2002</u>	<u>Laurie Caskey-Schrieber, Whatcom County Council</u>
<u>6/17/2002</u>	<u>Dan McShane, Whatcom County Council</u>
<u>6/17/2002</u>	<u>Ward Nelson, Whatcom County Council</u>
<u>6/17/2002</u>	<u>Sharon Roy, Whatcom County Council</u>
<u>6/20/2002</u>	<u>Greater Vancouver Regional District</u>
<u>6/25/2002</u>	<u>Mark Asmundson, Bellingham Mayor</u>
<u>6/25/2002</u>	<u>Susan Meyer and Patricia Johnson, Washington Department of Ecology</u>
<u>6/26/2002</u>	<u>EFSEC staff: Allen Fiksdal, Michelle Elling, Irina Makarow; Washington Department of Ecology: Don Kjosness; Shapiro: Marc Boule, Jack Gouge; Mike Lufkin; U.S. Army Corps of Engineers : T.J. Stetz, Olivia Romano; Bonneville Power Administration: Tom McKinney</u>
<u>7/2/2002</u>	<u>Blaine City Officials, Gary Tomsic, Terry Grant</u>
<u>7/3/2002</u>	<u>Bill Taylor, Chairperson for Bellingham Economic Development</u>
<u>7/8/2002</u>	<u>Nick Jerns, President of the Birch Bay Chamber of Commerce</u>
<u>7/9/2002</u>	<u>EIS Scoping Meeting, Agency Meeting</u>
<u>7/9/2002</u>	<u>EIS Scoping Meeting, Public Meeting</u>
<u>7/25/2002</u>	<u>Doug McCallum, White Rock Mayor</u>
<u>7/25/2002</u>	<u>NW Construction Consumer Council</u>
<u>8/28/2002</u>	<u>Laurie Caskey-Schrieber, Whatcom County Council</u>
<u>9/4/2002</u>	<u>U.S. Army Corps of Engineers: T.J. Stetz, Olivia Romano, Randel Perry; Washington Department of Ecology: Susan Meyer; Whatcom County: Peter Sim</u>
<u>9/5/2002</u>	<u>U.S. Army Corps of Engineers: T.J. Stetz, Olivia Romano</u>
<u>9/23/2002</u>	<u>Bellingham City Council</u>
<u>10/1/2002</u>	<u>Susan Meyer and Stephen Stanley, Washington Department of Ecology</u>
<u>10/3/2002</u>	<u>U.S. Army Corps of Engineers: Olivia Romano and Randle Perry</u>
<u>10/18/2002</u>	<u>Andrew Wilkinson, Deputy Minister, BC Ministry of Intergovernmental Relations</u>
<u>10/18/2002</u>	<u>Martha Choe, Director, CTED</u>
<u>10/21/2002</u>	<u>U.S. Army Corps of Engineers: Olivia Romano, T.J. Stetz, Randle Perry, Washington Department of Ecology: Susan Meyer, Stephen Stanley, Washington Fish and Wildlife: Curt Leigh</u>

BP Cherry Point Cogeneration Project
Application for Site Certification

Date	Entity, Organization or Group
<u>10/21/2002</u>	<u>Gary Rodford, Senior VP, Executive Operations, BC Hydro</u>
<u>11/7/2002</u>	<u>Barry Penner, MLA Chilliwack-Kent</u>
<u>11/22/2002</u>	<u>Larry Kitchen, Bonneville Power Administration Sr. Account Executive, Bulk Marketing and Transmission Services</u>
<u>11/20/2002</u>	<u>Kelli Linville, Washington State Representative, 42nd District</u>
<u>12/19/2002</u>	<u>Roland Storme and Lee Conrad, Washington State Department of Transportation</u>
<u>1/9/2003</u>	<u>Mary Reeves, Abbotsford Mayor, Patricia Ross, Abbotsford City Councillor</u>
<u>1/9/2003</u>	<u>Hugh Sloan, Director of Planning, Fraser Valley Regional District</u>
<u>1/15/2003</u>	<u>Mike Kaufman, GASP</u>
<u>1/15/2003</u>	<u>Mike Lufkin, Counsel for the Environment</u>
<u>1/29/2003</u>	<u>Greater Vancouver Regional District Technical Group, Ali Ergudenler, Colin, Adam, Stephanie Meyn, Ken Reed</u>
<u>1/30/2003</u>	<u>Pete Kremen, Whatcom County Executive, and Dewey Desler, Deputy Administrator</u>
<u>2/4/2003</u>	<u>Dewey Desler, Whatcom County Deputy Administrator</u>
<u>2/14/2003</u>	<u>Andrew Wilkinson, Deputy Minister, BC Ministry of Intergovernmental Relations</u>
<u>2/27/2003</u>	<u>Bellingham Herald</u>
<u>2/28/2003</u>	<u>Judy Forster, Mayor, White Rock; Barry Penner, MLA Chilliwack-Kent; John Less, MLA Chilliwack-Kent; Gordon Hogg, MLA Surrey-White Rock Minister of Children and Family Development; Gorn Schaffer, President White Rock-South Surrey Chamber of Commerce; Ron Leach, President Blaine Chamber of Commerce; Margaret Cuthbert, Friends of Semiahmoo Bay; David Riley, Little Campbell River Water Shed Society and the White Rock/Surrey Naturalists; Brian Stebbe, White Rock/Surrey Naturalists; Ed Masters, Executive Asst. to Minister Hogg; Verna Logan, Constituency Assistant to Minister Hogg, Bernard Charles, Grand Chief, Semiahmoo First Nation</u>
<u>3/12/03</u>	<u>Washington Utilities and Transportation Commission – Commissioners and staff</u>

[April 2003](#)